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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,834	01/05/2004	Liming Tsau	1875.0230001	2507
26111	7590	07/05/2005		EXAMINER
STERNE, KESSLER, GOLDSTEIN & FOX PLLC 1100 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005				NGUYEN, KHIEM D
			ART UNIT	PAPER NUMBER
			2823	

DATE MAILED: 07/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/750,834	TSAU, LIMING
Examiner	Art Unit	
Khiem D. Nguyen	2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 20 April 2005.

2a)  This action is **FINAL**.                    2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)  Claim(s) 1-4 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5)  Claim(s) \_\_\_\_\_ is/are allowed.  
6)  Claim(s) 1-4 is/are rejected.  
7)  Claim(s) \_\_\_\_\_ is/are objected to.  
8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on 03 June 2004 is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All b) Some \* c) None of:  
1. Certified copies of the priority documents have been received.  
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_

4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_ .

5)  Notice of Informal Patent Application (PTO-152)  
6)  Other: \_\_\_\_\_

## DETAILED ACTION

### *Terminal Disclaimer*

The Terminal Disclaimer submitted by the Applicant on April 20<sup>th</sup>, 2005 to overcome the double patenting rejection in the Office Action mailed on January 21<sup>st</sup>, 2005 has been approved. Thus, the double patenting rejection in that Office Action is withdrawn.

### *Claim Rejections - 35 USC § 102*

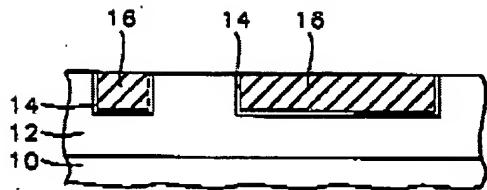
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

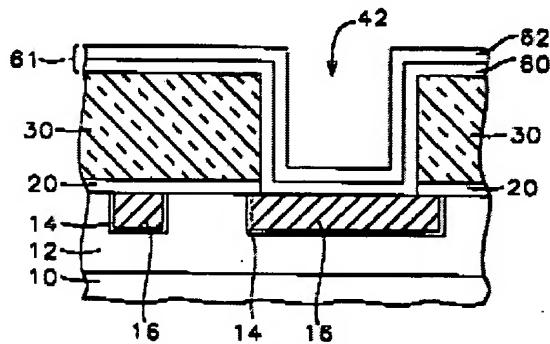
Claims 1-4 are rejected under 35 U.S.C. 102(e) as being anticipated by Ma et al. (U.S. Patent 6,329,234).

In re claim 1, Ma discloses a metal-insulator-metal (MIM) capacitor process, comprising: forming a first metal layer **16** on a substrate **10**, wherein a portion of the first metal layer **16** is utilized as the lower plate of the MIM capacitor (col. 6, lines 22-46 and FIG. 1);



*FIG. 1*

forming an etch stop layer 61 on the substrate 10 and the first metal layer 16, wherein a portion of an etch stop layer is 61 utilized as the insulator for the MIM capacitor (col. 7, lines 20-28 and FIG. 6); and



*FIG. 6*

forming a second metal layer 90 on the substrate 10 and portion of an etch stop layer 16, wherein a portion of the second metal layer is utilized as the upper plate of the MIM capacitor (col. 8, lines 2-36 and FIG. 9);

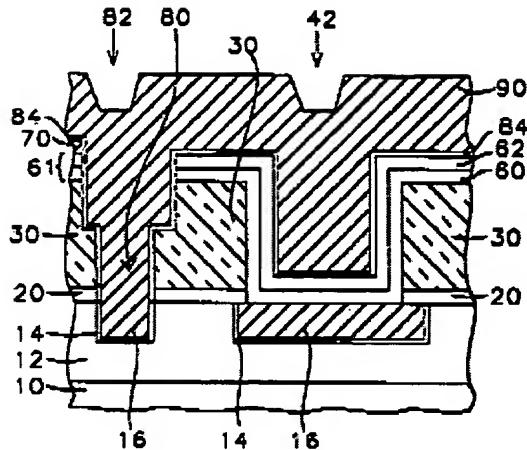


FIG. 9

wherein the first 16 (col. 6, lines 22-46) and the second 90 (col. 8, lines 2-15) metal layers include copper or a copper alloy.

In re claim 2, Ma discloses that the stop layer 61 includes a silicon nitride layer (col. 7, lines 20-28).

In re claim 3, Ma discloses that the second metal layer 90 is polished by chemical-mechanical polishing (col. 8, lines 16-36 and FIG. 10).

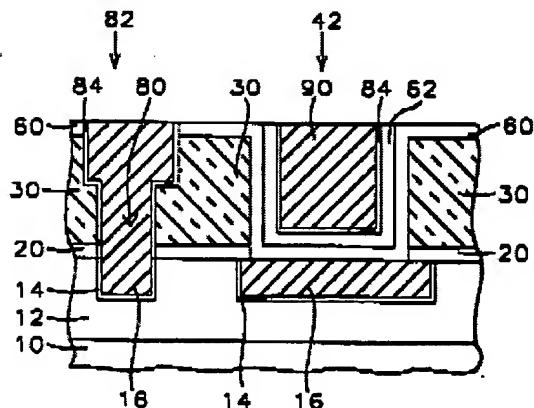


FIG. 10

In re claim 4, Ma discloses that the first metal layer **16** is polishing by chemical-mechanical polishing (col. 6, lines 22-46 and FIG. 1).

*Response to Applicant's Amendment and Arguments*

Applicant's arguments filed April 20<sup>th</sup>, 2005 have been fully considered but they are not persuasive.

Applicant contends that Ma does not teach or suggest at least: (1) forming a metal layer on a substrate; (2) forming an etch stop layer on the substrate and on the first metal layer; and (3) forming a second metal layer on the substrate and a portion of the etch stop layer, as recited in claim 1.

In response to Applicant's argument that Ma does not teach or suggest at least: (1) forming a metal layer on a substrate; (2) forming an etch stop layer on the substrate and on the first metal layer; and (3) forming a second metal layer on the substrate and a portion of the etch stop layer, as recited in claim 1. Examiner respectfully submits that Ma does teach a metal-insulator-metal (MIM) capacitor process, comprising: forming a first metal layer **16** on a substrate **10** (col. 6, lines 22-46 and FIG. 1); forming an etch stop layer **61** on the substrate **10** and the first metal layer **16**; and forming a second metal layer **90** on the substrate **10** and a portion of an etch stop layer **61** (col. 8, lines 2-36 and FIG. 9).

Applicant further stated that because Ma requires two layers, insulator **12** and metal barrier **14**, be formed between substrate **10** and metal layer **16**, so the metal layer **16** cannot be on substrate **10**, and similarly, because Ma requires a conductive buffer

layer **84** be formed between alleged etch stop layer **61** and metal layer **90**, so metal layer **90** cannot be on either substrate **10** or the alleged etch stop layer **61**.

Since Applicant did not limit the first metal layer be formed directly on top of the substrate and that the second metal layer be formed directly on top of the substrate and a portion of the etch stop layer, Examiner respectfully submits that Applicant's argument is moot in view of the Ma reference. Although Ma does not explicitly teach or suggest forming a first metal layer **16** directly on top of a substrate **10** and forming a second metal layer **90** directly on top of the substrate **10** and a portion of an etch stop layer **61**, He does suggest that a first metal layer **16** is formed on a substrate **10** and a second metal layer **90** is formed on the substrate **10** and a portion of the etch stop layer **61**.

For these reasons, examiner holds the rejection proper.

### *Conclusion*

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khiem D. Nguyen whose telephone number is (571) 272-1865. The examiner can normally be reached on Monday-Friday (8:30 AM - 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on (571) 272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

K.N.  
June 25<sup>th</sup>, 2005



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